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07/29/2003

Chris E. Barns

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EXAMINER

DUONG, KHANH B

ART UNIT

PAPER NUMBER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/629,127
Filing Date: July 29, 2003
Appellant(s): BARNS ET AL.

MAILED

MAR 23 2006

GROUP 2800

Timothy N. Trop
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed January 3, 2006 appealing from the Office action mailed August 8, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(10) Response to Argument

A. Claims 1-3 and 5-12 are anticipated by Lee (U.S. Patent No. 6,800,530).

In regard to the Lee '530 patent, Applicant persistently argues that the CMP or stripping process is not inherently selective of the hard mask over the spacer.

The Examiner respectfully disagrees because Lee '530 discloses in FIG. 7 the hard mask 52 may be removed during a CMP process to reduce the thick layer (nitride 72 and oxide 76), wherein the polysilicon 30 functions as an etch stopper for the CMP process [see col. 4, lines 9-17]. Thus, it is understood that the CMP process only etches/removes layers 76, 72 and 52 residing above the polysilicon 30. And since the CMP process stops at the polysilicon 30, the sidewall spacer of nitride 72 is not etched/removed as shown in FIG. 8. Hence, such a CMP process can be considered as being inherently selective of layers 76, 72 and 52 over the sidewall spacer of nitride 72.

Alternatively, Lee '530 discloses "[i]f such a process is not used, the remaining portion of layer 52/152 is stripped, exposing the poly 30 in the gate" [see col. 4, lines 18-20]. Clearly, "such a process" is being referred to the process of removing the hard mask layer 52 and portions of 152 above polysilicon 30 (combined "layer 52/152") in order to expose the polysilicon layer 30 during the CMP process [see col. 4, lines 13-18]. In other words, Lee is suggesting that another way of exposing the polysilicon 30 is to perform a stripping process to remove the hard mask layer 52 and the portions of 152 above the polysilicon 30. And since the stripping process only removes the hard mask layer 52 and portions of 152 above polysilicon 30, the sidewall spacer of nitride 72 is not etched/removed. Hence, such a stripping process can be considered as being selective to the hard mask layer 52 and portions of 152 over the sidewall spacer of nitride 72.

Applicant argues that the citation to the Yeh patent to support inherency in a Section 102 rejection is inappropriate. In response, the Examiner respectfully disagrees because it is not inappropriate, at least in a Section 102, to further clarify the issue of inherency by providing some extrinsic evidence from a secondary reference which makes clear that the missing descriptive matter is necessarily present in the stripping process described in the Lee '530 patent.

It is further noted that Applicant has incorrectly restated the Examiner's position that layer 152 of Lee is the sidewall spacer. It is respectfully submitted that layer 72 (NOT 152) was interpreted by the Examiner as the sidewall spacer [see Office Action dated 08/08/2005].

Applicant further argues that the sidewall spacers 72 remain after the removal process is incorrect. In response, the Examiner respectfully disagrees because Lee '530 expressly discloses in FIG. 8 the sidewall spacers 72, which comprises of vertical portions 72 and NOT the entire original blanket deposited layer 72, remain after the removal of the hard mask layer 52 by either the CMP and/or the stripping process. As discussed above, either the CMP and/or the stripping process can be considered as being selective of the hard mask 52 over the sidewall spacers 72.

B. Claims 14, 16-19 and 25-27 unpatentable over Lee (U.S. Patent No. 6,258,648) in view of Lee et al. (U.S. Patent No. 6,800,530).

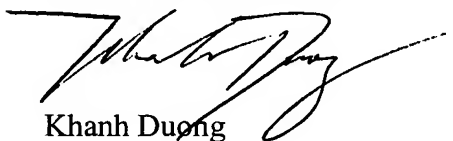
Applicant persistently argues that Lee '648 fails to show removing the nitride hard mask using a selective etch. In response, the Examiner respectfully disagrees because Lee '648 discloses in FIG. 5 removing a portion of the hard mask layer 26 using an anisotropic etch (RIE). Since a mask layer 28 is used for removing only a portion of the hard mask 26, the etch process can be considered as a "selective etch".

Applicant argues Lee '648 fails to show removing the nitride hard mask 26 over the first polysilicon gate electrode (emphasis added). In response, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). It is respectfully submitted that the limitation "using a hard mask over said first polysilicon gate structure" does not necessarily preclude the hard mask to be formed on other structures [see claim 14, lines 2-4]. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Lee '530 suggests in FIG. 8 replacing a polysilicon gate structure 30 with a metal gate replacement 133 for the purpose of forming a temperature sensitive gate electrode so as to enhance device performance.

For the above reasons, it is believed that the rejections should be sustained.

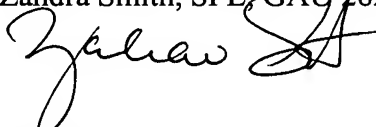
Respectfully submitted,



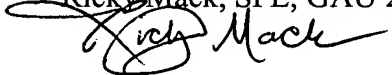
Khanh Duong

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A handwritten signature in black ink, appearing to read "Zandra Smith", written over the printed name.

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Khanh Duong, Examiner, GAU 2822

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